PANEL MULTIPLE BANKS
REQUIREMENTS AND ADJUSTING PROCEDURES

1. GENERAL

1.01 This section covers panel multiple banks (1, 2, 3, 4, 5, 6, 7, 8, 9, 15, 16, 17, 18, and 28 types).

1.02 This section is reissued to change the title, to revise the requirement covering cleaning and treating bank terminals, to revise the list of tools and gauges, and to make minor changes in adjusting procedures. Detailed reasons for reissue will be found at the end of the section.

1.03 Reference shall be made to Section 020-010-711 covering General Requirements and Definitions for additional information necessary for the proper application of the requirements listed herein.

1.04 *Reference Terminals:* All the terminals in the same circuit group as the nickel-dipped reference terminal are known as reference terminals.

1.05 The requirements for the positioning of contact terminals shall apply for a distance of 13/64 inch measured from the tip of the terminal in toward the base.

1.06 Precautions should be taken in using metal gauges or tools to check or adjust bank terminals connected to working equipment, to prevent circuit reactions due to bridging terminals.

1.07 Theoretically correct dimensions for terminal spacing are shown on the figures as an aid in checking and adjusting the terminals to the requirements specified herein.

1.08 Reference herein to 100-point banks applies to the 1-, 2-, 4A-, 4D-, 5A-, 5D-, 9-, 15E-, 16-, and 17-type banks.

1.09 *Banks With Silver Terminals:* A red stripe on the upper mounting bar of the bank above the soldering terminals indicates that the bank has silver-plated tip and ring terminals. Under no circumstances abrade the tip and ring terminals of banks so designated.

1.10 *Make-Busy Information:* Before making any of the inspections or readjustments covered by this section, make busy the circuits associated with the elevator apparatus in the approved manner. Do not start to clean or treat terminals until the brush rods associated with the terminals or the adjacent terminals have restored to normal.

1.11 This section covers the application and removal of KS-16885 L2 contact protectant compound using KS-16930, L1 tool kit and the application and removal of KS-13713 compound using the KS-13500 tool kit.

2. REQUIREMENTS

2.01 *Cleaning and Treating Bank Terminals and Cleaning Guide Combs and Multiple Brushes*

(a) *Cleaning*

(1) *Brass Bank Terminals:* Where contact protectant is not to be applied or prior to the initial application of contact protectant, brass bank terminals shall be abrasively cleaned in accordance with approved procedures.

(2) *Silver Bank Terminals:* Silver bank terminals which are not to be treated with contact protectant shall be treated as covered under (b).

Caution: No abrasive cleaning shall be done on the contact edges of silver-plated terminals of any bank.

(3) *Guide Combs and Multiple Brush Rollers and Shoes:* Guide combs and multiple brush rollers and shoes shall be cleaned

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in accordance with procedures dependent upon whether or not contact protectant has been applied to the banks.

(b) *Treating*

(1) ***Where Contact Protectant Is Not To Be Applied to Brass Terminals:*** No treatment.

(2) ***Where Contact Protectant Is Not To Be Applied to Silver Terminals:*** Oil treat the tip and ring terminals according to approved procedures.

(3) ***Where Contact Protectant Is To Be Applied to Brass and Silver Terminals:*** Abrade the terminals, if necessary, and treat the terminals as covered in the appropriate section using the KS-16930 tool or the KS-13500 tool.

(4) Terminals on new banks shall be treated with contact protectant only at the request of the telephone company.

(c) ***Recommended Interval of Cleaning and Treating***

(1) ***Oil Treating:*** Silver bank terminals which have been oil treated should not require treatment more frequently than at yearly intervals.

(2) ***Retreating With Contact Protectant:*** At periodic intervals, the contact protectant shall be removed, the associated parts cleaned, and the terminals retreated in accordance with the appropriate section. The treatment should ordinarily be effective for at least 4 years except in the case of subscriber link district finder banks where retreatment at 1-year intervals is recommended. Somewhat shorter intervals of retreatment may be necessary for treated frames near windows that are opened or near other sources of airborne dust, or if trouble records and subscribers reports of noisy connections indicate the need for retreating. In the latter case, a contact noise survey of the office would be useful in deciding whether retreatment is required. Also sequence switches and commutators should be considered as possible sources of noise before assuming that retreatment is necessary.

(3) ***Cleaning Guide Combs and Multiple Brush Rollers and Shoes:*** Where banks have been treated with contact protectant, the guide combs and multiple brush rollers and shoes shall be cleaned at the time the protectant is being removed from the bank terminals. If necessary, these parts may be cleaned at other times without removing the protectant on the terminals. Where contact protectant has not been used, the guide combs and multiple brush rollers and shoes shall be cleaned when necessary.

2.02 ***Vertical Spacing of Terminals with Respect to Reference Terminals:*** Fig. 1(A), 2(A), and 3(A) — Any deviation of a tip, ring, sleeve or hunting terminal in any vertical row from its theoretically correct location with respect to its reference terminal shall not exceed:

(a) ***100-Point Banks*** — 0.015 inch

Use the No. 116A gauge.

(b) ***All Other Banks*** — 0.0085 inch

Gauge by eye.

2.03 ***Vertical Spacing of Terminals With Respect to Adjacent Terminals (Except 3-, 8-, and 28-type Banks):*** Fig. 1(B) and 3(B) — The distance between the top edge of each contact terminal and the bottom edge of the terminal next above it in the same vertical row shall be

Min 0.095 inch

Gauge by eye.

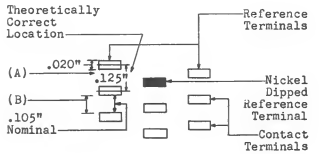

Fig. 1 — The 1-, 2-, 4-, 5-, 7-, 9-, 15-, 16-, 17-, and 18-type Banks

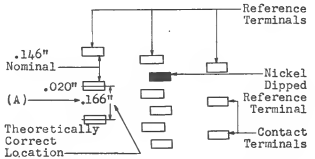

Fig. 2 – The 3-, 8-, and 28-type Banks

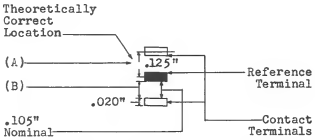

Fig. 3 – The 6-type Banks

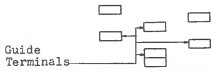

Fig. 4 – No. 4D, E, F, 5D, E, F, and 15-, 16-, and 17-type Banks

2.04 ***Soldering Terminals:*** No soldering terminal shall be broken to the extent that a satisfactory soldering connection is not assured.

2.05 ***Contact Terminals:*** No contact terminal shall be broken.

2.06 ***Horizontal Position of Guide Combs (Except No. 4D, E, F, 5D, E, F, and the 6-, 15-, 16-, and 17-type Banks)***

(a) ***Guide Combs Equipped with Tip and Ring Guides:*** Fig. 5(A) and 6(A) — The contact edges of the bottom terminals in any vertical row and the corresponding edges of the associated guides shall not be out of alignment more than 0.016 inch.

Gauge by eye.

(b) ***Guide Combs not Equipped With Tip and Ring Guides — Three Terminals in a Group:*** Fig. 7(A) — The contact edges of the bottom sleeve terminals of the bank and the corresponding edges of the associated guide shall not be out of alignment more than 0.020 inch.

Gauge by eye.

As an aid in judging this dimension the thickness of the bank terminal, 0.020 inch, may be used as a reference.

(c) ***Guide Combs not Equipped With Tip and Ring Guides — Four Terminals in a Group:*** Fig. 8(A) — The right edge of the lowest bank terminal and the left edge of the next to the lowest bank terminal of the center row of terminals and the corresponding edges of the associated guide shall not be out of alignment more than 0.020 inch.

Gauge by eye.

As an aid in judging this dimension the thickness of the bank terminal, 0.020 inch, may be used as a reference.

2.07 ***Vertical Position of Guide Combs (Except for No. 4D, E, F, 5D, E, F, and the 6-, 15-, 16-, and 17-type Banks)***

(a) ***Guide Combs Equipped With Tip and Ring Guides:*** Fig. 5(B) and 6(B) — The vertical distance between the underside of the bottom terminal in each vertical row and the top of the associated guide shall be

Min 0.105 inch

Gauge by eye.

(b) ***Fig. 5(C) and 6(C):*** The vertical distance between the underside of the bottom terminal in each vertical row of sleeve terminals and the top of the associated guide shall be

Max 0.125 inch

Gauge by eye.

(c) ***Guide Combs not Equipped With Tip and Ring Guides:*** Fig. 7(B) and 8(B) —The vertical distance between the underside of the sleeve terminal and the top of the associated guide shall be

Min 0.105 inch
Max 0.125 inch

Use the R-2310 gauge, detail 2.

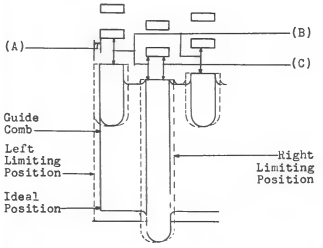

Fig. 5 – No. 4A, B, C, 5A, B, C, and 1-, 2-, 7-, 9-, and 18-type Banks

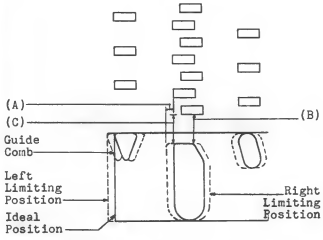

Fig. 6 – The 3-, 8-, and 28-type Banks

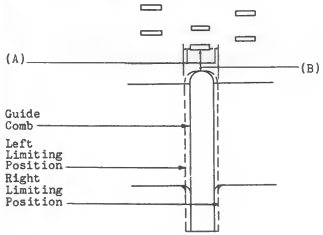

Fig. 7 – No. 4A, B, C, 5A, B, C, and 1-, 2-, 7-, 9-, and 18-type Banks

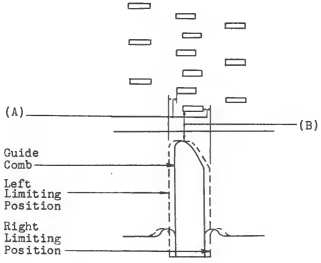

Fig. 8 – The 3-, 8-, and 28-type Banks

2.08 ***Front-to-Rear Vertical Position of Guides—Guide Combs not Equipped With Tip and Ring Guides:*** The front-to-rear vertical position of each guide shall be approximately parallel to the frame of the guide comb.

Gauge by eye.

3. ADJUSTING PROCEDURES

3.001 ***List of Tools and Gauges***

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
273	Adjuster
325B	Adjuster
432B	Multiple Bank Terminal Adjuster
→R-6770	Slotted Screwdriver
→—	4-inch E Screwdriver (or the replaced 4-inch regular screwdriver)
GAUGES	
116A	Bank Terminal Locating Gauge
R-2310 (Detail 2) (2 Reqd)	0.105- and 0.125-inch Double-end Nonmetallic Thickness Gauge

3.01 ***Cleaning and Treating Bank Terminals and Cleaning Guide Combs and Multiple Brushes*** (Reqt 2.01)

(1) Clean and treat brass and silver terminals and clean guide combs and multiple brushes in accordance with appropriate section dependent upon whether or not contact protectant has been applied to the banks.

3.02 ***Vertical Spacing of Terminals With Respect to Reference Terminals*** (Reqt 2.02)
3.03 ***Vertical Spacing of Terminals With Respect to Adjacent Terminals (Except 3-, 8-, and 28-type Banks)*** (Reqt 2.03)

(1) ***100-Point Banks:*** To check the vertical spacing of terminals on 100-point banks, proceed as follows. Place the No. 116A gauge in the vertical space between the rows of the tip and sleeve terminals or the ring and sleeve terminals depending on the terminals to be checked. (See Fig. 9.) Then engage the guide pins of the gauge with the reference terminal of the vertical row being checked, as shown in Fig. 10. Then remove the hand from the handle of the gauge. Do this so that the gauge will not be moved while checking the terminals. When checking the spacing of the terminals, the eye should be on a level with the terminal being engaged. It is not intended that the extra terminals on No. 15E and 16- and 17-type banks which serve as guides as shown in Fig. 4, be checked with the gauge except the sleeve terminal immediately below the No. 0 terminal on No. 15E banks. If the multiple brush in the normal position on banks on which the brushes are permanently tripped, interferes with the placing of the gauge on the bank, lower the downstop collar in accordance with the section covering the elevator apparatus involved. Take care that the downstop collar is properly located after the gauging operation.

(2) If the gauging operation indicates that the end of any terminal projects above or below the corresponding white mark on the gauge, place the No. 432B adjuster over the terminal at fault as far back as possible and adjust it up or down as required.

(3) Take care when realigning bent terminals to adjust to the mean so that requirement 2.03 covering minimum spacing between adjacent terminals is met. This will insure that the readjusted terminals will be satisfactorily positioned.

(4) ***Other Than 100-Point Banks:*** To check the vertical spacing of terminals which have been bent on these banks, gauge the location of the terminal under consideration by comparing it with the location of adjacent terminals in the same vertical row. If any terminal is bent, adjust as covered in (2). To check the spacing of terminals which may be displaced for other reasons, make use of the tripped associated multiple brush as a means of determining the location of the terminals.

(5) Check the top, middle, and bottom terminals of a group by means of the tripped associated multiple brush. When these terminals have been properly positioned, they may be used as guides for properly locating the remaining terminals in a group. If a bank is served by two multiple brushes, that is, the lower half of the bank by one brush and the upper half by another brush, check the top, middle, and bottom terminals of each half with their associated multiple banks.

3.04 ***Soldering Terminals*** (Reqt 2.04)
3.05 ***Contact Terminals*** (Reqt 2.05)
No procedures.

3.06 ***Horizontal Position of Guide Combs (Except No. 4D, E, F, 5D, E, F and the 6-, 15-, 16-, and 17-type Banks)*** (Reqt 2.06)
3.07 ***Vertical Position of Guide Combs (Except No. 4D, E, F, 5D, E, F and the 6-, 15-, 16-, and 17-type Banks)*** (Reqt 2.07)

(1) ***Guide Combs Equipped With Tip and Ring Guides:*** If the position of the guide comb is not satisfactory, slightly loosen the guide comb mounting screws with the 4-inch screwdriver while holding the nuts with the R-6770 screwdriver and shift the guide comb as required. Loosen the mounting screws just enough to permit relocating the guide combs. In making this adjustment take care that the adjustment of the guide comb on the other side of the bank is not disturbed, as both guide combs are held in place by the same mounting screws. After the guide comb has been satisfactorily adjusted, securely tighten the mounting screws.

(2) ***Guide Combs not Equipped With Tip and Ring Guides:*** Slightly loosen the guide combs as outlined in (1) and position the guide

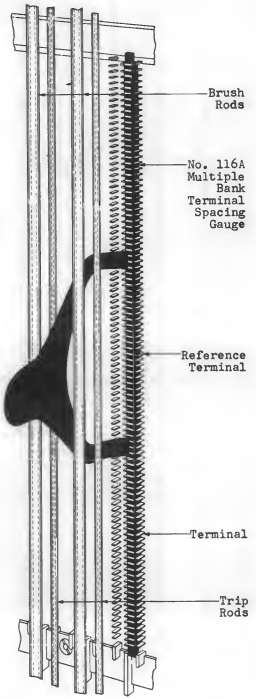

Fig. 9 – Method of Placing No. 116A Multiple Bank Terminal Spacing Gauge Between Vertical Rows of Terminals

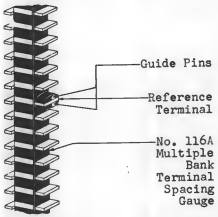

Fig. 10 – Method of Placing Guide Pins of No. 116A Multiple Bank Terminal Spacing Gauge on Reference Terminal

combs visually so that as many as possible of the guides are centered horizontally with respect to the associated vertical rows of terminals. Insert the 0.105-inch end of one of the R-2310 gauges between the sleeve terminal at the end of each of the associated guide combs on opposite sides of the bank and the associated guide comb prong. Then press each guide comb up against the gauge and tighten the screw sufficiently to retain this adjustment. Repeat this procedure on the opposite end of the guide comb. Recheck both ends of the guide combs. If the guide comb cannot be positioned so that all the guides are positioned properly, raise the associated brush rods high enough to provide access to the guide comb. In the case of the lowest guide comb, it may be necessary to remove the rack and block the brush rod in the raised position. Then if necessary adjust the individual guides with the narrow slotted end of the No. 273 adjuster. Exercise care not to nick the guide or allow the adjuster to come into contact with the bank terminals. Remount the rack and restore the brush rod to normal.

3.08 ***Front-to-Rear Vertical Position of Guides—Guide Combs not Equipped With Tip and Ring Guides*** (Reqt 2.08)

(1) To adjust the guide with respect to its front-to-rear vertical position, use the offset end of the No. 325B adjuster. Place the adjuster on the guide from the left side.

Caution: Take care when adjusting a guide that the adjustment does not throw it out of parallelism with the guide comb to such an extent that the contacting surfaces of the associated brush fail to coincide with the edges of the guide.

REASONS FOR REISSUE

1. To add 1.11.
2. To revise the requirement covering cleaning and treating bank terminals (2.01).
3. To revise the List of Tools and Gauges (3.001).
4. To omit reference to referring the matter to the supervisor [3.02 and 3.03(2) and (4)].
5. To revise the procedure for guide combs equipped with tip and ring guides [3.06(1)].